

**REMARKS**

**I. Status of the Claims.**

Claims 1-14, 20-31, and 53 are pending in this application and have been rejected.

There are no amendments to the claims in this paper.

**II. Submission of Foreign Patent Document.**

The Examiner has requested a legible copy of JP 11-128667. *Office Action* at 2. Applicants have enclosed a copy of this reference with this paper.

**III. Rejections Under 35 U.S.C. § 102(b) Over *Motoya*.**

The Examiner has rejected claims 1, 5-6, and 8-12 under 35 U.S.C. § 102(b) over JP 09-187646 ("*Motoya*"). *Office Action* at 3. This rejection should be withdrawn because the Examiner has not identified each and every element of claims 1, 5-6, and 8-12 in *Motoya*.

Rejecting a claim under 35 U.S.C. § 102(b) requires that "each and every element" of that claim is found in "single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831 (Fed. Cir. 1990).

The Examiner has not identified "each and every element" of claim 1 in *Motoya*. See *Verdegaal Bros.*, *supra*. First, the Examiner has not identified any teaching in which "the inorganic ion absorbing material is supported on the outer surface and on the surface of inner cavities." Claim 1. The Examiner has not even alleged that this

element is present in *Motoya*. Rather, the Examiner's only reference to this element was this application. *Office Action* at 3 (citing *this application* at claim 1).

Second, the Examiner has not identified any teaching of "cavities in the interior of a fibril" in *Motoya*. The Examiner contends that *Motoya* discloses "communicating pores opening at an outer surface and cavities in the interior of a fibril forming a communicating pore . . ." *Office Action* at 3 (emphasis added). However, the Examiner is mistaken. *Motoya* does not disclose a porous formed article including cavities in the interior of a fibril forming a communicating pore. *Motoya* discloses a "three-dimensional [network frame]" of "three-dimensional frame organization". *Motoya* at para. 5. *Motoya* does not disclose that the fibrils making up this three-dimensional frame should additionally include cavities in their interiors. Accordingly, *Motoya* does not disclose each and every element of claim 1 because *Motoya* does not disclose the interior cavities recited in claim 1.

In order for *Motoya* to anticipate claim 1, it must disclose "each and every element" of that claim. As discussed above, *Motoya* discloses neither (1) that "the inorganic ion absorbing material is supported on the outer surface and on the surface of inner cavities" nor (2) "cavities in the interior of a fibril". In view of these deficiencies, the rejection of claims 1, 5-6, and 8-12 under 35 U.S.C. § 102(b) over *Motoya* should be withdrawn because *Motoya* does not disclose each and every element of these claims. *Verdegaal Bros., supra*.

Additionally, Applicants note that the Examiner has relied on this application as a disclosure of some elements not identified in *Motoya*. *Office Action* at 3 (citing *Motoya* at p. 3, para. 5). Specifically, the Examiner appears to rely on claim 1 of this application

as disclosing that “the inorganic ion absorbing material is supported on the outer surface and on the surface of inner cavities.” *Id.* Applicants respectfully point out that the Examiner’s use of the present disclosure to support a rejection of the present claims is inappropriate.

#### **IV. Rejections Under 35 U.S.C. § 103(a).**

The Examiner has rejected claims in this application under 35 U.S.C. § 103(a) over *Motoya* in view of the following combinations of *Chang*, *Cheremisinoff*, and/or *Kazuhiko*:

- A. The Examiner has rejected claims 1-6, 8-14, 20, and 53 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang*. *Office Action* at 4-6;
- B. The Examiner has rejected claim 7 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Cheremisinoff*. *Id.* at 6;
- C. The Examiner has rejected claims 21-31 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Kazuhiko*. *Id.* at 7-8;

“The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness.” M.P.E.P. § 2142. Determining obviousness under 35 U.S.C. § 103 requires that the Examiner perform four factual inquiries. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007) (citing *Graham v. John Deere Company of Kansas City*, 383 U.S. 1 (1966)). These inquiries establish the facts upon which obviousness should be judged. These factors are as follows:

1. Scope and content of the prior art;
2. Differences between the prior art and the claim at issue;
3. Level of skill in the art; and
4. Objective evidence.

*Graham* at 17.

In order to establish a prima facie case of obviousness, the Examiner must provide clear reasons as to why the claim “as a whole” would have been obvious at the

time that the invention was made. 35 U.S.C. § 103(a). “[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR* (quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006)).

Each of the above-listed rejections should be withdrawn because the Examiner has not evaluated all of the differences between each claim and the cited art. The Examiner has incorrectly determined that *Motoya* discloses “communicating pores opening at an outer surface and cavities in the interior of a fibril forming a communicating pore, some cavities open at the surface . . .” *Office Action* at 4 (emphasis added); see *above* at III. The Examiner has *neither* identified “cavities in the interior of a fibril . . .” in the *Motoya* reference *nor* suggested that including “cavities in the interior of a fibril . . .” as part of a porous formed article would have been obvious. Applicants respectfully point out that the Examiner must evaluate the obviousness of each claim *as a whole* in view of all of *all* of the differences between the claim and the prior art. 35 U.S.C. § 103(a).

**A. Rejection of Claims 1-6, 8-14, 20, and 53 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang*.**

The Examiner has rejected claims 1-6, 8-14, 20, and 53 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang*. *Office Action* at 4-6. Applicants respectfully request that the Examiner withdraw this rejection because the Examiner has not provided any reason to modify *Motoya* to include “cavities in the interior of a fibril”.

The Examiner asserts that “[a]s to Claims 1-4, 14, 20, [and] 53, MOTOYA discloses a porous formed article comprising an organic polymer resin and an inorganic ion absorbing material with communicating pores opening at an outer surface and

cavities in the interior of a fibril forming a communicating pore such that some of the cavities open at the surface of the fibril . . . .” *Office Action* at 4 (emphasis added).

As discussed above, the Examiner is mistaken as to the scope and contents of *Motoya*. See above at III. In particular, *Motoya* does not disclose “cavities in the interior of a fibril”, and the Examiner has not otherwise asserted that including these cavities would have been obvious. The Examiner cites *Chang* only as providing “spherical beads made of polyacrylonitrile”. *Office Action* at 5. The Examiner does not suggest that *Chang* would have provided any reason to include “cavities in the interior of a fibril” disclosed by *Motoya*, nor do Applicants believe that any reason exists in *Chang* to do so.

The Examiner has not provided a reason to support the legal conclusion that 1-6, 8-14, 20, and 53 would have been obvious. *KSR* (quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006)). Specifically, the Examiner has not articulated why including “cavities in the interior of a fibril” of a porous formed article would have been obvious. In view of not fulfilling this requirement, the Examiner has not established a prima facie case of obviousness. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of 1-6, 8-14, 20, and 53 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* because the Examiner has not provided any reason to modify *Motoya* to include “cavities in the interior of a fibril”.

**B. Rejection of Claim 7 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Cheremisinoff*.**

The Examiner has rejected claim 7 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Cheremisinoff*. *Office Action* at 6. Applicants respectfully request that the

Examiner withdraw this rejection because the Examiner has not provided any reason to modify *Motoya* to include “cavities in the interior of a fibril”.

The Examiner asserts that “[a]s to Claim 7, MOTOYA (in view of Chang) discloses the inorganic ion absorbing material *as shown in the rejections above*” and “CHEREMISINOFF discloses that activated carbon impregnated with aluminum sulfate is a commonly known coagulant . . . .” *Office Action* at 6 (emphasis added). The Examiner then concluded that “it would be obvious to a person having ordinary skill in the art to include a well-known coagulant for water treatment in the porous article used for water treatment of MOTOTA in view of CHANG. *Id.* In issuing the rejection of claim 7, the Examiner relies on the previous finding that “MOTOYA discloses a porous formed article comprising an organic polymer resin and an inorganic ion absorbing material with communicating pores opening at an outer surface and cavities in the interior of a fibril forming a communicating pore such that some of the cavities open at the surface of the fibril . . . .” *Id.* at 6; *see also Id.* at 4.

As discussed above, the Examiner is mistaken as to the scope and contents of *Motoya*. *See above* at III. In particular, *Motoya* does not disclose “cavities in the interior of a fibril”, and the Examiner has not otherwise asserted that including these cavities would have been obvious. The Examiner cites *Cheremisinoff* only as providing “activated carbon impregnated with aluminum sulfate”. *Office Action* at 6. The Examiner does not suggest that either *Chang* or *Cheremisinoff* would have provided any reason to include “cavities in the interior of a fibril” disclosed by *Motoya*, nor do Applicants believe that any reason exists to do so in this prior art.

The Examiner has not provided any “rational underpinning” to support the legal conclusion that claim 7 would have been obvious “as a whole”. 35 U.S.C. § 103(a); *In re Kahn* at 988. Specifically, the Examiner has not articulated why including “cavities in the interior of a fibril” of a porous formed article would have been obvious. Because the Examiner has not fulfilled this requirement, the Examiner has not established a prima facie case of obviousness. See *In re Kahn*, above. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claim 7 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Cheremisinoff* because the Examiner has not provided any reason to modify *Motoya* to include “cavities in the interior of a fibril”.

**C. Rejection of Claims 21-31 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Kazuhiko*.**

The Examiner has rejected claims 21-31 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and *Kazuhiko*. Office Action at 7-8. Applicants respectfully request that the Examiner withdraw this rejection because the Examiner has not provided any reason to modify *Motoya* to include “cavities in the interior of a fibril”, which is required in claims 21-31.

The Examiner asserts that “[a]s to Claims 21-31, MOTOYA (in view of CHANG) discloses the ion absorbent for removing ions from waste water *as shown in the rejection above . . . .*” Office Action at 7 (emphasis added). Here, the Examiner incorporates the previous assertions regarding the *Motoya* disclosure in support of rejecting claims 21-31.

As discussed above, the Examiner is mistaken as to the scope and contents of *Motoya*. See above at III. In particular, *Motoya* does not disclose “cavities in the interior of a fibril”. The Examiner has not asserted that including these cavities would

have been obvious in view of *Motoya*, alone or in combination with *Chang* and/or *Kazuhiko*. The Examiner cites *Kazuhiko* as providing “a pH-controlling device and membrane separation device . . . .” *Office Action* at 7. The Examiner does not suggest that *Kazuhiko* would have provided any reason to include “cavities in the interior of a fibril”, nor do Applicants believe that *Kazuhiko* or *Chang* contain any teaching to do so. Accordingly, no combination of references cited in support of rejecting claims 21-31 discloses “cavities in the interior of a fibril”. Again, “cavities in the interior of a fibril” is expressly recited in claim 1.

The Examiner reasons only that “one having ordinary skill would have been motivated to include waste water treatment apparatus with an ion absorbent . . .” and concludes that “the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.” *Office Action* at 7. However, while the Examiner contends that including a waste water treatment apparatus would have been obvious—and Applicants do not agree—the Examiner has not indicated why “cavities in the interior of a fibril” would have been obvious. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 21-31 under 35 U.S.C. § 103(a) over *Motoya* in view of *Chang* and/or *Kazuhiko* because the Examiner has not provided any reason to modify *Motoya* to include “cavities in the interior of a fibril”.



**V. Conclusion**

Applicants respectfully request that the Examiner withdraw the prior art rejections of record because the prior art relied upon by the Examiner fails to teach or suggest each and every element recited in the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account No. 06-0916.

Respectfully submitted,

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